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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,420	03/06/2001	Kevin David Sanderson	1-15240	5624

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EXAMINER	
FULLER, ERIC B	
ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/744,420	SANDERSON, KEVIN DAVID	
	Examiner	Art Unit	
	Eric B Fuller	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22 and 34-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22 and 34-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 8, 10-14, 18, 34, 38 – 40, 42, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Proscia (US 5,286,520) in view of Tracy et al. (US 4,687,560) and Florczak (US 6,268,019 B1).

Proscia teaches a method of coating a glass substrate (column 4, lines 25-30) with a fluorine-doped tungsten oxide layer for producing solar control glass. The process may occur during the well-known float glass process (column 3, lines 45-50). Proscia teaches that trifluoroacetic acid, as the fluoride source for doping, may be simultaneously added to a gas stream comprising oxygen and tungsten hexafluoride (column 3, line 33). Proscia also teaches a method of entraining the tungsten precursors where nitrogen is used as the carrier gas (column 4, lines 13-22).

The reference fails to explicitly teach the use of a tungsten chloride or an oxyhalide as the tungsten precursor. However, Tracy teaches that either tungsten chloride or tungsten oxytetrachloride may be used as the precursor in place of tungsten hexafluoride for depositing a tungsten oxide film by CVD (column 5, lines 30-40). The pressure of the process taught by Tracy is significantly lower than the atmospheric

pressure CVD method taught by Proscia. Therefore, in order to further prove that one would have a reasonable expectation of success, the examiner points to the teachings of Florczak. Florczak teaches an atmospheric pressure CVD method for depositing metal oxide coatings to float glass by decomposing metal chlorides (abstract). From the combined teachings of Tracy and Florczak, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to utilize either tungsten oxytetrachloride or tungsten chloride as the precursor for the process taught by Proscia. By doing so, one would have a reasonable expectation of success, as Tracy teaches the art recognized suitability of suing tungsten chloride or tungsten oxytetrachloride in place of tungsten hexafluoride in a CVD process for depositing tungsten oxides and Florczak teaches process parameters for depositing the equivalent precursors under atmospheric conditions. Florczak teaches the claimed substrate temperature (column 6, lines 45-50) and precursor temperature (column 4, lines 35-40).

As to claim 4, the reference fails to explicitly teach that the tungsten chloride is substituted. However, Tracy does teach that the precursor is either tungsten chloride or tungsten oxyhalide (column 5, lines 15-20). It is the examiner's position that one of ordinary skill in the art would recognize that by the reference teaching that the ligand of the tungsten precursor being capable of being either chloride or an oxyhalide, that it is implied that the oxyhalide substituent and the chloride substituent behave the same way in the reaction-deposition process. Therefore, it would have been obvious that if a tungsten precursor with a chloride ligand may be used, and a tungsten precursor with an oxyhalide ligand may be used, then one of ordinary skill in the art would have a

reasonable expectation to believe that a tungsten precursor containing chlorides and oxyhalides as its ligands would succeed in performing the process as taught. To use the substituted precursor would have been obvious at the time the invention was made to a person having ordinary skill in the art with the expectation of achieving similar results, as discussed above.

As to claim 18, Proscia fails to explicitly teach the growth rate of the deposited film. However, to achieve maximum rate without sacrificing film quality would have been obvious and within the skill of one practicing in the art, absence evidence of criticality.

Claims 1, 2, 4-9, 17-22, 34-37, and 40-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gallego et al. (US 6,048,621) in view of Tracy et al. (US 4,687,560) and Florczak (US 6,268,019 B1).

Gallego teaches a process of coating a glass substrate during the float glass production process (column 3, lines 20-25) for forming a solar control glass (abstract) by first coating it with an underlayer of silicon, carbon, and oxygen (column 3, lines 40-45). Then a layer of tungsten oxide, in a non-stoichiometric amount, is deposited on the underlayer (abstract, column 2, lines 24-33) with a thickness of 50 nm to 500 nm (column 2, lines 43-45). Then an overlayer of fluorine doped tin oxide is deposited upon that layer (column 3, lines 50-65). The reference teaches that the stoichiometry is altered by altering the flow of oxygen, but fails to teach the precursors for depositing the tungsten oxide layer.

However, as it has been shown above, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the precursors of Tracy in order to produce the tungsten oxide layer of Gallego. By doing so, one would have a reasonable expectation of success, as Tracy teaches the art recognized suitability of suing tungsten chloride or tungsten for depositing tungsten oxides and Florczak teaches process parameters for depositing the equivalent precursors under atmospheric conditions.

As to claim 18, Gallego fails to teach the growth rate of the deposited film. However, to achieve maximum rate without sacrificing film quality would have been obvious and within the skill of one practicing in the art, absence evidence of criticality.

As to claim 43, Gallego teaches the multiple-glazing unit with the coated glass in spaced opposed relation to the glazing plane (column 4, lines 38-45).

Claims 1, 2, 5-8, 10-16, 18, 23, 34-35, 38-42, and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riaz et al. (US 5,385,751) in view of Tracy et al. (US 4,687,560) and Florczak (US 6,268,019 B1).

Riaz teaches a method of coating a glass substrate (column 3, line 23) with a fluorine-doped tungsten oxide layer. The process may occur during the well-known float glass process (column 3, line 20). Riaz teaches that trifluoroacetic acid, as the fluorine source for doping, may be simultaneously added to a gas stream that comprises tungsten alkoxides and an oxygen source (column 2, line 54). Riaz also teaches a

method of entraining the tungsten precursors where nitrogen is used as the carrier gas (column 3, lines 58-68).

The reference does not explicitly teach the use of the applicant's tungsten precursor. However, as it has been shown above, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the precursors of Tracy in order to produce the tungsten oxide layer of Riaz. By doing so, one would have a reasonable expectation of success, as Tracy teaches the art recognized suitability of suing tungsten chloride or tungsten oxytetrachloride in place of tungsten hexafluoride in a CVD process for depositing tungsten oxides and Florczak teaches process parameters for depositing the equivalent precursors under atmospheric conditions.

As to claims 13, 16, 38, and 39, Florczak teaches the claimed substrate temperature (column 6, lines 45-50) and precursor temperature (column 4, lines 35-40).

As to claim 18, Riaz fails to teach the growth rate of the deposited film. However, to achieve maximum rate without sacrificing film quality would have been obvious and within the skill of one practicing in the art, absence evidence of criticality.

Claims 1, 2, 8, 10-14, 17, 19, 34, 38-40, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Florczak (US 6,268,019 B1) in view of Proscia et al. (US 5,324,537), or vice versa.

Florczak teaches a method of coating a glass substrate with a fluorine-doped metal oxide layer (column 6, lines 55-65). The process may occur during the well-

known float glass process (column 4, lines 50-29). Florczak teaches trifluoroacetic acid as the fluorine source for doping (column 4, lines 47-51). Oxygen sources are taught (column 4, lines 30-39). Substrate temperatures are taught (column 6, lines 45-50). The reference fails to explicitly teach depositing tungsten oxides.

Proscia teaches a method of forming fluorine doped tungsten oxide films that are applied to glass substrates during the float glass production process (column 2, lines 30-35). By doing so, a suitable solar control glass is formed (column 1, lines 25-31). A temperature range for the substrate is taught (column 3, lines 1-4). The precursor for the fluorine doping is taught (column 3, lines 33-42). The reference is silent to the precursors of the tungsten oxide film.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to deposit tungsten oxide by the method taught by Florczak, i.e. using tungsten as the metal in the metal chloride taught. By doing so, one would reap the benefits of achieving suitable solar control, as taught by Proscia.

It also would have been obvious to use the metal chloride precursors taught by Florczak in the process taught by Proscia. By doing so, one would have a reasonable expectation of success, as Proscia teaches a process, but is silent to the precursors, and Florczak teaches precursors to a similar process.

Response to Arguments

Applicant argues that the art fails to teach on-line coating. This is not found convincing. This is explicitly taught by Proscia (column 3, lines 45-50).

Applicant argues that one would not be motivated to look to Tracey and would now have the knowledge to use the precursors of Tracey in the process taught by Proscia. This is not found convincing. Although Tracey uses a reduced pressure process that includes plasma in order to increase deposition rate, both processes are still chemical vapor deposition processes. One would have the insight to understand that the chemical reaction is still fundamentally the same between the two processes. Thus, one would have a reasonable expectation of success for using the precursors of Tracey in the process of Proscia. Even if this argument fails, one would at least have the knowledge to use the CVD process taught by Tracey in place of the CVD process taught by Proscia, which teaches the process on-line with the float process. One of ordinary skill would have the ability to control pressure in the on-line process.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric B Fuller whose telephone number is (571) 272-1420. The examiner can normally be reached on Mondays through Thursdays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks, can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EBF

TIMOTHY MEEKS
SUPERVISORY EXAMINER